TECHNICAL BOOK REVIEW INDEX

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ANTHONY A. MARTIN, *Editor*

Volume 27 **December, 1961** **No. 10**

THE purpose of the Technical Book Review Index is primarily to identify reviews in current scientific, technical, and trade journals; secondarily, when feasible, to quote from these reviews. In the evaluation of scientific and technical books, reviews constitute the best existing source of information. The service of the Technical Book Review Index is thus in the field of evaluation, rather than in competition with existing publications which announce new and forthcoming books, list books by subjects, or supply bibliographic information. Each quotation immediately follows the name of the journal from which it is taken. Obviously, these brief extracts, detached from the context, must not be accepted as conclusive. Except for the correction of obvious errors, the bibliographic information is as given in the reviews. It is, therefore, in many cases incomplete and in some cases probably inaccurate.

Abresch, K., & Claassen, I.

Die coulometrische Analyse. 228p. 1961. Verlag Chemie, Weinheim, Germany, DM 24.

Journal of the Royal Institute of Chemistry, Oct. 1961, p.365. 1⅛ col. including another review.

"Offers a welcome 'first' in the field of coulometric analysis, which has hitherto been accorded only sections in larger works on electroanalytical chemistry . . . Classification of material is good, even meticulous, throughout, but the treatment of principles is rather brief and superficial. In fact the whole treatment, while meaty and comprehensive, tends to be brief and tantalizing. This is proper enough in a text purporting to introduce a technique to a wide circle of potential users, and which offers a key to the particular literature, though this is rather less than the declared aim . . . Those seeking to learn something of coulometry . . . will find adequate explanation and directions here." *E. Bishop.*

Aris, Rutherford.

Optical design of chemical reactors. v.3: Mathematics in science and engineering. 191p. 1961. Academic Press, New York, $7.

Journal of the Franklin Institute, Oct. 1961, p.332. 1¾ col.

"Content is very mathematical as befits the subject. The reader should be grounded in such basic advanced mathematical concepts as probability distributions, transforms, etc., to follow the derivations. An understanding of chemical engineering kinetics and thermodynamics will also be useful . . . Chemists, chemical engineers, designers, operations analysts and computer specialists will benefit by this work. The publisher's cover includes undergraduates in the suggested audience. Unless the undergraduate educational processes are suddenly accelerated with computer speed this is likely to be an overenthusiastic statement." *R. A. Baker.*

Brooks, Peter W.

Modern airliner. 176p. 1961. Putnam, London, 30s.

Journal of the Royal Aeronautical Society, Oct. 1961, p.703. ⅝ col.

"At last a useful contribution to air transport writing has appeared in Britain by a man closely connected with the business. Peter Brooks, now Fleet Planning Manager of B.E.A., has made a close study of the transport aeroplane, and his book should be required reading for all those in the air transport industry including the manufacture of transport aeroplanes . . . If any criticism can be leveled at this work it is a regret that there are only a little over 160 pages and that the work is sparsely illustrated. Nevertheless, this book can be regarded as an appetizer because Mr. Brooks has completed a larger work on the same subject and this is to be published later this year." *John Stroud.*

Brown, B. M.

Mathematical theory of linear systems. 280p. 1961. Chapman & H., London, 50s.

Electrical review, Oct. 6, 1961, p.548. ⅝ col.

"Primarily for control engineers and is devoted to the presentation of principles rather than to applications. On a broad assessment, however, the book is of value to most engineering students since linear systems are one of the engineer's main concerns . . . The standard of the work is that of elementary to intermediate and it does not assume an unduly high prior knowledge of the techniques presented. For research workers, to whom mathematics are essential, for the mathematically-inclined engineer and for engineering students, this book will be found to be a help, by reason of both its contents and treatment . . . De-

serves and should attain considerable popularity." *A. E.*

Process control and automation, Oct. 1961, p.460. ½ col.

"Presents the basic mathematical theory of linear control systems in its most elementary form and provides the practising engineer with a comprehensive account of the mathematical methods required for solving the problems of analysis and synthesis. Although the Laplace transformation and harmonic response methods are explained and used when appropriate, the general theory is based on the fundamental properties of linear differential equations, using operational notation and methods. This not only has greater generality of application but also simplifies much of the analysis."

Burgess, Eric.

Long-range ballistic missiles. 255p. 1961. Chapman & H., London, 35s.

New scientist, Oct. 26, 1961, p.258. ⅞ col.

"The author . . . was one of the earliest members of the British Interplanetary Society, and he possesses all the uninhibited enthusiasm for rocketry which distinguishes the pioneer. This book is the result . . . of a tour of many thousands of miles which Mr Burgess made in order to find out more about the American ballistic missile programme . . . Uneven treatment is inevitable where a vast subject is treated in depth, even — as here — by an author of great ability and wide experience. None the less, one suspects the book suffers unnecessarily from too hurried and ill-considered a composition, the result perhaps of an overdose of zeal." *T. R. F. Nonweiler.*

Capek, Milič.

Philosophical impact of contemporary physics. 414p. 1961. Van Nostrand, Princeton, N. J., $7.50.

Proceedings of the IRE, Oct. 1961, p.1591. ⅓ col.

"Primary purpose . . . is to bring into full focus the contrast between the classical and modern conceptual frameworks of physics . . . Intended both for students of philosophy interested in learning more about physics, and students of physics interested in gaining a deeper appreciation of the philosophical implications of their subject . . . While the present reviewer found this book most worthwhile, he did not find it as incisive or illuminating as other books on the same general subject, such as Margenau's 'The Nature of Physical Reality'." *Frank Herman.*

Catch, J. R.

Carbon-14 compounds. 128p. 1961. Butterworth & Co., Washington, D. C., $5.50.

Chemical age, Oct. 14, 1961, p.595. ⅓ col.

"Achieves its objectives in a competent fashion; the style is clear, its limitations are stated and it indicates how the reader can expand his reading. The chief chapters describe the syntheses of C-14 labelled organic compounds by chemical and by biological methods, together with practical aspects, the characteristic features of these compounds . . . and the methods of analysis and measurement . . . Besides being appropriate for organic, physical and bio-chemists who are using these compounds, this book is suitable for reading by both finals and honours students. The price seems rather high for so few pages but, although it is not too condensed, not a word has been wasted."

Chistyakov, N. I.

Transistor electronics in instrument technology; translated from the Russian. 370p. 1961. Pergamon, New York, 84s.

Instrument practice, Oct. 1961, p.1265. ¼ col.

"Papers contained in this volume review many important developments achieved by U.S.S.R. research institutes, and academic and industrial laboratories. The contributions were presented at the first conference organised by the Scientific Technical Society, Moscow — a meeting devoted to the theory, calculation, physical principles of operation, construction and technical applications of the most important semiconductor devices and elements such as thermistors, photocells, galvanomagnetic sensing elements, thermocouples, cooling elements, diodes and transistors."

Chmelka, F., & **Melan**, D.

Einführung in die Statik. Ed.7. 210p. 1961. Springer, Berlin, DM 19.

Acier stahl steel, Sept. 1961, p.403. ⅛ col.

"Written by two eminent professors of the Technological University of Vienna . . . [and] intended particularly for civil engineering students . . . Contains the basic principles and enables the reader to make himself familiar with the fundamental theories necessary for tackling the complex problems of structural stability. The assimilation of this knowledge is made easy, for the dominant qualities of this little book are indisputably the logic, the simplicity and the clarity with which the subject matter is treated."

Cockett, Sydney R., & **Hilton**, K. A.

Dyeing of cellulosic fibres and related processes. 417p. 1961. Academic Press, New York, $12.

Journal of the Society of Dyers and Colourists, Sept. 1961, p.445. 1⅓ col.

"Contains a great deal of information and its price is reasonable. It is even wider in scope than the title suggests for, in addition to the 99 pages devoted to structure and processing and 23 to finishing, there is an 88-page section on the chemistry of colouring matters, one of 39 pages on theory of dyeing, and one of 33 pages on light and colour in relation to chemical composition. The colouring of cotton textiles is confined to considerably less than half the book . . . This is the first book, for a long time, which has attempted to deal comprehensively with the coloration of a particular type of fibre . . . The present authors deserve our thanks for providing a much-needed text book which, despite its faults, will be of considerable value to students of dyeing." *C. B. Stevens.*

Collatz, Lothar.

Numerical treatment of differential equations; translated from the German by P. G. Williams. Ed.3. 568p. 1960. Springer, Berlin, DM 98.

Mathematics of computation, Oct. 1961, p.426. ¾ p.

"Will be welcomed by all those people who are in any way concerned with the numerical solution of differential equations. No single book . . . contains such a vast amount of material . . . The book is large but by no means covers the subject completely, as the author is careful to point out in the preface. Professor Collatz also disclaims any attempt to make general critical comparisons of the various methods presented . . . There is no mention made of the use of computers . . . for the numerical solution of differential equations . . . Can be recommended for its vast coverage, its many worked examples, and its close attention to error estimates." *Richard C. Roberts.*

Cook, H.
Technical illustrator. 120p. 1961. Chapman & H., London, 35s.

Engineer, Oct. 20, 1961, p.647. ½ col.

"Seeks to fill a possible need for guidance by trainee illustrators during the elementary period of their development . . . This is no textbook for the earnest student, but as the author himself says, is '. . . one to be read, without a conscious feeling of learning, by the interested enthusiast . . .' A broad, general idea of the various forms of technical illustration can certainly be gleaned from its pages, and this is assisted, to some extent, by the large number of illustrations included . . . Proof-checking has, unfortunately, not been carried out with the accuracy that the book deserves."

Copeland, Paul L., & Bennett, W. E.
Elements of modern physics. 522p. 1961. Oxford, New York, $8.50.

Discovery, Oct. 1961, p.459. ⅔ col.

"Divided into three sections. Part 1, 'The Rise of Atomic Physics', deals in a complete manner with the topics customarily included in any course on modern physics . . . The second part, 'Configurations of Electrons', deals with wave mechanics . . . The third part, 'Nuclear Physics', is a very readable and straightforward account of radioactivity, neutrons and particle physics in general, with a final chapter on atomic energy and reactors . . . While it is doubtful if this would ever become a recommended text book for an English university student, either of physics or engineering, its merits could assuredly claim a place for it on the library shelves in both departments and even in the sixth-form library of the more enterprising schools." *N. Thompson.*

Crafton, Paul Arthur.
Shock and vibration in linear systems. 415p. 1961. Harper, New York, $10.

Design news, Nov. 10, 1961, p.119. ⅛ col.

"The purpose . . . is to give the reader an understanding and mastery of the fundamental principles of linear shock and vibration phenomena and of the methods of application of these principles to general mechanical instructions systems. A modern approach of the operation calculus has been taken. In addition, the concept of the transfer function is used throughout. This approach places the study of shock and vibration on a more general foundation. No prior knowledge by the reader of the operation of calculus or transfer functions is assumed . . . Illustrated extensively and contains problems to demonstrate the principles of shock and vibration."

Midwest engineer, Oct. 1961, p.22. ½ col.

"A knowledge of differential equations is the only mathematical prerequisite. The principles and methods of application of the operational calculus and the concept of the transfer function used in the study are clearly woven into the text . . . Presents a unified analytical and theoretical treatment, making full use of the operational calculus of the Laplace transform, transfer functions, mechanical impedances, and mechanical circuits . . . Deals fully with transient and steady-state phenomena, with no primary emphasis on the latter." *L. M. G.*

Crede, C. E. See **Harris, Cyril M., & Crede, C. E., ed.**

Davies, A. G.
Organic peroxides. 215p. 1961. Butterworth & Co., London, 50s.

Chemical age, Oct. 28, 1961, p.694. ½ col.

"No book on organic peroxides has appeared since that of Tobolsky and Mesrobian (1954). Davies covers a wider field so that there is some justification in his claim that 'no comprehensive account . . . has been available'. The first eight of the 14 chapters are devoted to the main classes of peroxide. The treatment is formal and systematic. Most of the space is devoted to methods of preparation and physical properties. Very full references are given and the reader can confidently use these chapters as reliable compilations from the literature up to about October 1960 . . . Certain of a welcome from many chemists."

Davis, Sidney A., & Ledgerwood, B. K.
Electromechanical components for servomechanisms. 338p. 1961. McGraw, New York, $11.50.

Machine design, Oct. 26, 1961, p.233. ¼ col.

"Presents facts and data for use in selecting and applying rotating components in the design of precision servomechanisms . . . Shows what to look for in buying components and how to specify them for maximum reliability. Design features of the various components — materials, winding distribution, skew — are analyzed to show how they affect the components' performance in a system. Examples illustrate how equivalent circuits can be used to determine shifts in component characteristics caused by changes in temperature, frequency, line voltage and capacitance, etc."

Denisse, J. F., & Delcroix, J. L.
Theorie des ondes dans les plasmas. 180p. 1961. Dunod, Paris, 16 N.F.

Journal of electronics and control, July 1961, p.64. ⅛ p.

"A comprehensive study of waves in plasmas, presenting the types of existing waves in a form as general and systematic as possible. Thus the behaviour of the four types of adiabatic oscillation is studied over the frequency spectrum as a whole from the region of high frequencies, particularly important in radiation problems, to the region of low frequencies, namely of magnetohydrodynamic frequencies which occur more particularly in plasma dy-

namics . . . Will appeal to physicists as well as to geophysicists and astrophysicists . . . Of equal interest to research workers by reason of its new presentation of types of waves, original results, diagrams and numerical data."

Dickerman, Philip J., ed.

Optical spectrometric measurements of high temperatures. 268p. 1961. Univ. of Chicago Press, Chicago, $12.50.

Review of scientific instruments, Oct. 1961, p.1160. 1 col.

"A compilation of technical papers presented at a conference bearing the same title which was held under joint sponsorship of the University of Chicago, The Jarrell-Ash Company, and The National Science Foundation . . . Much of the text is devoted to the theoretical concepts of temperature, the dependence of radiation on temperature (both theoretical and experimental), and the question of the existence of local thermodynamic equilibrium . . . Although it does not give detailed information on experimental apparatus for optical spectrometric measurements of temperature, it does treat some theoretical and experimental aspects of almost every known method for measuring plasma temperatures ranging from 2500°K to 10^6K." *H. N. Olsen.*

Dickey, George D.

Filtration. 353p. 1961. Reinhold, New York, $12.

Wastes engineering, Oct. 1961, p.595. ¼ col.

"This text, of interest particularly to sanitary engineers, includes a comprehensive study of filtration as it applies to both the wastes and water treatment fields. A brief summary of pertinent mathematical theories anad formulas along with current design and construction practices of various classes of filters are presented and illustrated. Operating practices and resultant data are also included."

Doyle, Lawrence Edward, and others.

Manufacturing processes and materials for engineers. 797p. 1961. Prentice-Hall, Englewood Cliffs, N. J., $15.

Materials in design engineering, Oct. 1961, p.51. ⅝ col.

"The authors' approach is to look upon today's diversified manufacturing processes as challenging engineering problems and to show how they can be effectively solved by the application of scientific and economic principles. To accomplish this, the book necessarily deals with certain fundamentals; the early chapters, for example, are in the form of a review of basic metallurgical knowledge (which also serve as a good introduction to those not trained in this direction). The rest of the book is devoted to detailed discussions of manufacturing processes and forming techniques."

Fano, Robert M.

Transmission of information; a statistical theory of communications. 389p. 1961. Wiley, New York, $7.50.

American journal of physics, Nov. 1961, p.793. ⅝ col.

"Described as the outgrowth of lecture notes for a graduate seminar in communication theory and could be well used as a text for similar purposes. Among the books now available on this rapidly growing subject the present text is distinguished by a rather consistent restriction of scope to problems of interest to a communications engineer, plus formal continuity and considerable mathematical detail. The mathematical background required is moderate, principally, a good grounding in probability theory and, inevitably, some mathematical maturity." *David Hawkins.*

Proceedings of the IRE, Oct. 1961, p.1592. 1¼ col.

"On the whole, the subject is presented clearly and simply . . . Should be an excellent text for a first course on the subject. The mathematical background of the reader does not have to include more than the fundamentals of probability theory and of Fourier analysis. A set of 80 problems should help the student assimilate the material and appreciate some of its practical applications." *Georges A. Deschamps.*

Fox, B. A., & **Cameron,** A. G.

Chemical approach to food and nutrition. 326p. 1961. Univ. of London Press, London, 30s.

Chemistry & industry, Oct. 7, 1961, p.1611. ⅝ col.

"In one sense the authors . . . have set out to lead the layman from the simple, and to him no doubt vague, terms *carbohydrate, protein, fat* to a reasonable understanding of their nature and significance in everyday food. The theme is developed to a careful plan which, after introducing the main types of food and their respective nutritive functions, leads from an account of enzymes and the digestive processes to a brief narrative description illustrated by simple diagrams of the nature of atoms and molecules and the essentials of structural organic chemistry. The principal and declared object . . . is to provide food chemistry and domestic science students with a discussion of the chemical nature of food, and what happens to it when it is cooked and eaten." *H. Egan.*

Frandsen, J. H., & **Arbuckle,** W. S.

Ice cream and related products. 360p. 1961. Avi Pub. Co., Westport, Conn., $10.50.

Food engineering, Oct. 1961, p.122. ¼ col.

"A fascinating chronology going back to earliest beginnings of the industry . . . Provides a careful discussion of all the separate ingredients, their relations and reactions on one another, a thorough explanation of the calculation of mixes and lucid directions with examples for solving all possible problems in formulating and modifying mixes. There is also a complete description of modern practice in large and small scale manufacture including the last word in automation."

Frost, A. A., & **Pearson,** R. G.

Kinetics and mechanism. Ed.2. 405p. 1961. Wiley, New York, $11.

Journal of chemical education, Oct. 1961, p.535. ¼ col.

"The revisions . . . are chiefly in the areas of elementary reactions in the gaseous phase and in the study of very rapid chemical reactions. The extra material adds 62 pages to the first edition. The authors are especially concerned with the study of the mechanisms of chemical reactions . . . Carefully written and,

while not exhaustive, includes many illustrative examples . . . Well suited to graduate courses in chemical kinetics of intermediate scope. The modern statistical mechanics approach is developed and discussed; the authors provide a useful point of departure in this important field." *Henry Eyring.*

Gebhart, Benjamin.

Heat transfer. 454p. 1961. McGraw, New York, $10.75.

Mechanical world, Oct. 1961, p.356. ⅝ col.

"There are many aspects to . . . [the] study [of heat transfer] and still more to its application, and these are prominently brought to mind by an examination of the pages of this excellent book. Conduction, convection, and radiation are all covered in many different practical aspects, such, for instance, as steady and unsteady states, enclosed surfaces, laminar and turbulent flow conditions, forced convection, correlations for flow passages, effects of body forces, heat transfer with liquid vaporization and vapour condensation, and dropwise condensation . . . Contains problems for teaching purposes but it is likely to find a permanent place in the library of any engineer who once consults it."

Gel'fand, I. M.

Lectures on linear algebra; translated from the Russian by A. Shenitzer. 185p. 1961. Interscience Publishers, New York, $6.

Journal of the Franklin Institute, Oct. 1961. p.329. ¾ col.

"The merit and charm of this book lie in the rare blend of mathematical elegance, pedagogy and compactness. The author prepares the reader to the next development and motivates the extensions and definitions before stating them . . . No mathematician could question the rigor of the theorems, proofs and definitions as they are exposed, yet the reader has a feeling of participation in the build-up of the theory . . . The book ends rather abruptly and the chapter on tensors seems unfinished. Two important appendices have been deleted . . . from the English edition, and the publishers . . . have omitted an index of topics. Forgetting these minor defects, the book appears to be a very suitable introduction to this important branch of mathematics and mathematical physics." *Henri Amar.*

Giachino, Joseph William, & **Beukema,** H. J.

Engineering-technical drafting and graphics. 778p. 1961. American Technical Soc., Chicago, $9.75.

Design news, Oct. 13, 1961, p.113. ¼ col.

"A nice compromise between the usual textbook and the industrial approach to drafting. The format itself is of interest because it is large enough to use large drawing examples. Photographs are used extensively to illustrate modern products which are used as examples in drafting . . . Intended for training in problem solving. More than a drafting book, the publication is a course in basic design including descriptive geometry, tool drawing, patents and methods of reproduction. Also included is an interesting chapter on developments and intersections of piping and similar structures. Graphs and charts are provided, although not in very great detail."

Goldberg, Richard R.

Fourier transforms. 76p. 1961. Cambridge, New York, $3.75. (Tracts in mathematics and mathematical physics, no.52.)

Physics today, Oct. 1961, p.52. ⅜ col.

"The material is derived largely from the fundamental researches of Wiener, Bochner, and some others. But the beauty and lucidity of the exposition are clearly the author's own, though with signs of Bochner inspiration. The first three chapters expound the classical Wiener theory, which relates the closure of the translations of a function with the nonvanishing of its Fourier transform. This is generalized in Chapter 4, while Chapter 5 is devoted to Bochner's theorem. There is an appendix on Fourier transforms in topological groups . . . Well written and beautifully produced." *J. Gillis*

Gomer, Robert.

Field emission and field ionization. 195p. 1961. Harvard Univ. Press, Cambridge, Mass., $6.75. (Harvard monographs in applied science, no.9.)

Chemistry & industry, Sept. 23, 1961, p.1518. 1 col.

"Developed from a series of lectures given by the author at Harvard University in 1958. For anyone becoming interested in these relatively new fields it provides a very readable introduction to the subject . . . Provides a very extensive review of the subject to the time of writing, and should prove invaluable to many and of interest to all concerned with metallic structure, adsorption and surface effects, and some fields of mass spectrometry." *P. F. Knewstubb.*

Gorbunov, N. S.

Diffuse coatings on iron and steel; translated from the Russian by S. Friedman and others. 165p. 1960. Israel Program for Scientific Translations, Jerusalem, 50s.

Journal of the Iron and Steel Institute, Oct. 1961, p.225. ⅛ col.

"The diffusion experiments described are all of the laboratory type, and there is hardly any mention of the important industrial protection processes based on diffusion. Many of the photomicrographs are not very convincing, but this is probably largely due to poor reproduction. Although unlikely to appeal to the general reader, the book will be welcomed by scientists and technologists faced with surface diffusion problems and anxious to refer to recent work carried out and published in Russia." *M. L. Becker.*

Greenwood, Douglas Cole, ed.

Engineering data for product design. 430p. 1961. McGraw, New York, $10.

Engineering materials and design, Oct. 1961, p.685. ⅛ col.

"Mr. Greenwood . . . has collected together about 160 selected articles and data sheets . . . [from *Product Engineering*] to form this book

. . . There is not the same cohesion in the contents that one finds in a book deliberately written from scratch for a purpose, and much fairly standard data could usefully be interpolated for comprehensiveness . . . It is . . . closer to an encyclopedia of not generally accessible data — a reference work in which each item is complete in itself and which can be browsed through with enjoyment . . . On the whole . . . a useful and interesting collection of design material, more appropriate, perhaps, for the general product designer than the specialist." *P. J. Booker.*

Tool and manufacturing engineer, Nov. 1961, p.187. ½ col.

"There is much practical engineering ingenuity condensed in the average reference sheets published by most technical periodicals, and much of it is lost as old issues of the magazines in which they appeared become more and more unavailable. In this book the editor . . . makes available much 'stuff that gives answers to the shirt-sleeved engineer' looking for a quick practical solution to an on-the-job problem. And, where the usual engineer's reference folder collects sheets haphazardly as they are published, this compilation puts order into that chaos."

Greiner, Richard A.

Semiconductor devices and applications. 405p. 1961. McGraw, New York, $6.50.

Proceedings of the IRE, Oct. 1961, p.1590. 1 col.

"The book under review possesses a number of shortcomings. The first chapter on modern physics is too brief . . . In terms of modern device practice, a chapter entirely devoted to metal-semiconductor contacts is wasted and takes space needed for other topics. A number of statements in the first half . . . are either in error or give the wrong emphasis . . . Despite the limitations . . . it should be found useful as an aid in instructing students unfamiliar with semiconductor devices and who quite likely intend to specialize in circuit applications. The experienced instructor will know what to add, what to delete, and what to correct, including misspellings of the well-known names Stirling and Hankel." *Nick Holonyak, jr.*

Gresswell, Ronald Kay.

Weather and climate of the British Isles. 142p. 1961. Hulton Educ., London, 12s. 6d.

Discovery, Oct. 1961, p.460. ⅜ col.

"Primarily intended for use in the middle and upper forms of grammar schools, but the author hopes that it will also prove to be of interest and value to adults. This hope seems justified, for the text is written in simple, nontechnical language, supported by a lavish use of diagrams and photographs . . . [Some] statements are completely inadequate, and one hopes that in any revision of this text space may be found for a firm statement to the effect that climate is something much more than a mere collection of mean values and that the variations from the mean are very often of much greater significance than the mean itself." *F. G. Hannell.*

Harris, Cyril M., & **Crede,** C. E., ed.

Shock and vibration handbook. 3v. 2029p. 1961. McGraw, New York, $25.

Journal of the Acoustical Society of America, Oct. 1961, p.1435. 1⅜ col.

"The most comprehensive treatment of this subject now available . . . An outstanding handbook that promises to become 'the' book on this subject . . . Besides being a must for the vibration and shock specialist, this handbook should be available to designers of any product which may have potential vibration or shock problems . . . The continuity of the text, and the problems illustrating the material presented, make this handbook suitable also as a textbook . . . There is little in the area of vibration and shock that is worthwhile that cannot be found in this book . . . One of the most useful books published recently for a large cross section of the engineering and scientific community." *Robert O. Fehr.*

Harris, W. J.

Metallic fatigue. 331p. 1961. Pergamon, New York, $12.50.

Science, Nov. 3, 1961, p.1413. ⅜ col.

"An excellent engineering review of fatigue in commercial metals and alloys with very special emphasis on aircraft materials . . . The author covers, in a lucid manner, the problems of stress concentration in fatigue and considers the various ways of improving the fatigue life . . . All in all, the book appears well written and the figures are well illustrated and clearly documented. The author has written from the viewpoint that the reader already knows about the elementary aspects of fatigue, and therefore the book would not be well suited for the 'uninitiated' researcher or student. Extensive references are listed at the end of each chapter and seem to be complete up to the year 1956. Very few papers are quoted beyond that year." *Oleg Sherby.*

Hawksley, P. G. W., and others.

Measurement of solids in flue gases. 214p. British Coal Utilisation Research Assoc., Leatherhead, England, 32s. 6d.

Colliery guardian, Oct. 19, 1961, p.463. ⅛ col.

"Part one of the handbook gives explicit instructions for measuring the emission of grit and dust by means of the cyclone probe equipment devised by the Association. The recommended procedure is simple, sufficiently accurate for most purposes and is especially suitable for the smaller industrial boiler. The second part deals with the general principles of measuring emission, while the third section discusses the physics of sampling solids from flowing fluids . . . An invaluable guide for those seeking ways and means of preventing grit and dust emissions."

Hellund, Emil John.

Plasma state. 197p. 1961. Reinhold, New York, $6.50.

Electrical review, Oct. 6, 1961, p.548. ½ col.

"For the engineer or research worker who would like to learn something about highly ionised plasmas and their potentialities without having first to acquire a specialist knowledge . . . Essentially non-mathematical, the

fundamental concepts underlying plasma behaviour being presented with the aid of models which will be appreciated readily by anyone with a sound electrical engineering background . . . The accent has been placed on the newer aspects of plasma application . . . In order to condense his work . . . the author has employed the simplest possible models of plasma behaviour . . . Diagrams and illustrations chosen are not consistent with the otherwise high standard of presentation, and there are surprisingly few of them for a book of this kind." *J. J. M.*

Hennie, Frederick C., III.
Iterative arrays of logical circuits. 242p. 1961. Wiley, New York, $4.95.
Journal of electronics and control, July, 1961. p.63. ⅛ p.
"Represents an attempt to formulate and answer a few simple questions about the analysis and synthesis of the more general types of iterative arrays . . . Although it is far from being a complete treatment of iterative systems, there are several reasons for making this material available in its present form. First, it contains several techniques which those interested in data processing, computer design, and switching theory may find useful . . . Second, it demonstrates that there can be no general procedures for the analysis and synthesis of even relatively simple types of iterative systems . . . Will have served its purpose if it stimulates some of its readers to apply their ingenuity to the important and fascinating problems as yet unsolved."

Hersh, Charles Karrer.
Molecular sieves. 124p. 1961. Reinhold, New York, $6.50.
Oil and gas journal, Oct. 30, 1961, p.166. ⅛ col.
"Reviews the use of natural and synthetic crystalline zeolites in separating both gaseous and liquid components by molecular-sieve action. The material presented involves only those sieves that are important in such separations . . . Also discusses the phenomenon of adsorption and explores the commercial use of synthetic zeolites. In addition, data are supplied which can help engineers design adsorption units. The information presented may also help solve specific problems concerned with dehumidification, separation, and catalytic activity."

Heumann, Gerhart W.
Magnetic control of industrial motors. 2 pts. 607p. 1961. Wiley, New York, $18.
Electronic industries, Oct. 1961, p.76. ¼ col.
"In what are primarily application books, controllers for industrial type A-C and D-C motors are carefully analyzed and each type of motor is granted full treatment in conjunction with its associated controllers. Motor performance data for the A-C squirrel-cage, wound-rotor, and synchronous motors are presented as well as data on D-C series and shunt motors; this is accompanied by formulas useful for calculating motor performance when motors are used with different types of controllers. Principal circuits, selection of controller sizes and components, economic factors affecting controller selection, motor protecsion [sic], and existing safety codes and standards are all given the most complete coverage possible."

Hubert, Charles I.
Operational electricity. 530p. 1961. Wiley, New York, $8.50.
Electronic industries, Oct. 1961, p.72. ¼ col.
"After careful analysis of the traditional methods of teaching this subject and critical examination of the demands the subject places on teacher and student alike, the author concludes that an integrated study of ac and dc circuits and machines offers much more than the usual separate treatment. The text is arranged for two levels of instruction. This is realized by blocking off the more complex derivations of formulas not essential to a basic understanding of electrical theory. The blocked off derivations provide additional interest for the faster students without confusing and slowing students less well grounded in the requisite physics and mathematics."
Machine design, Oct. 26, 1961, p.233. ⅛ col.
"Presents an integrated study of ac and dc circuits and machines . . . Stresses the fact that fundamental laws apply to both systems — that dc is only a special case of ac at a frequency of zero cycles per second. The author has injected operating techniques in addition to treatments of parallel operation of generators, the selection and application of motors and controls, magnetic controllers, and regulators."

Institution of Chemical Engineers.
Symposium on distillation. 281p. The Institution, London, 80s.
Industrial chemist, Oct. 1961, p.514. 1 col.
"In May 1960 an international symposium on distillation was held in Brighton. This symposium was organized jointly by the Institution of Chemical Engineers and The Chemical Engineering Group (S.C.I.) . . . The papers were grouped into four sections, heat and mass transfer, vapour-liquid equilibrium, performance of packed columns and performance of tray and other columns . . . The Brighton symposium certainly represented an important milestone in the history of distillation, and the collected papers with the discussion will undoubtedly be widely read by all interested in this field for many years to come."

Institution of Metallurgists.
Toughness and brittleness in metals. 108p. Iliffe, London, 27s. 6d.
Metal industry, Sept. 29, 1961, p.248. ½ col.
"In the first Paper . . . by Professor N. J. Petch, the differences between tough and brittle fractures and the mechanisms of crack formation are discussed. G. M. Boyd, in the second Paper, discusses the engineering aspect of stable and unstable types of fracture, explains cleavage and shear fracture and illustrates these with classical cases . . . In the third Paper, E. A. G. Liddiard discusses the effect of environment on embrittlement . . . Finally, H. M. Finniston gives the approach of the metallurgist to the problem of ductility and brittleness, and discusses the effect of strain rate."

Johnstone, N. B. B., & **Downie,** T. C.
Titrimetric analysis; an introductory course. 186p. 1961. Univ. of London Press, London, 13s. 6d.

Journal of the Royal Institute of Chemistry, Oct. 1961, p.369. 1 col.

"The arrangement of the material is somewhat unconventional. For example, techniques are not described until the last section of the book . . . Moreover, the list of abbreviations and symbols should have been given either at the beginning or at the very end . . . The various sections . . . are not well coordinated and there are several inconsistencies . . . The authors claim that their book has sufficient subject matter in it for second-year university courses. This is doubtful." *Ernest E. Aynsley.*

Johnstone, S. J., & **Johnstone,** M. G.
Minerals for the chemical and allied industries. Ed.2. 788p. 1961. Chapman & H., London, 147s.

Chemical age, Oct. 28, 1961, p.694. ½ col.

"The minerals are considered under about 80 headings . . . For a typical metal, the ores are first discussed, then the world production, the treatment of the ore, the figures for and uses and specifications for the material and its alloys. The references are full and very largely derived from U. S. literature. The revision for the second edition has been incorporated in each section. New chapters have been added on diamond, gold, helium, iron ores, hafnium, scandium and yttrium, and the scope of the section on clays has been expanded . . . Compiled with every care for the convenience of the reader . . . A most useful addition to the band of well-thumbed reference books."

Kuiper, Gerard P., & **Middlehurst,** B. M., ed.
Solar system. v.3: Planets and satellites. 601p. 1961. Univ. of Chicago Press, Chicago, $12.50.

Science, Oct. 27, 1961, p.1356. 1⅗ col.

"The 18 chapters were written by 19 active specialists who had access to important unpublished literature and who were in a position to evaluate the widely scattered literature in critical fashion . . . So much important previously unpublished material is in this book that the subject matter bears but slight resemblance to any other textbook or monograph. I can heartily recommend this volume both as a reference book for the specialist and as a source of information for scientists working in allied fields of study." *John B. Irwin.*

Kummel, F.
Regel-Transductoren. 455p. Springer, Berlin, DM 58.50.

Electrical journal, Sept. 29, 1961, p.783. ½ col.

"Deals with the manifold problems of the subject matter both from the theoretical and practical aspects . . . Commencing with a concise résumé of general principles, the materials and structure of the elements, the fundamental connections, the operation of the transducers in the various applications such as rectifiers, amplifiers, reactors, regulators, etc, are widely discussed. Particular attention is devoted to the problems of armature feeding of d.c. motors, and to the starting of a.c. and d.c. motors . . . Can be of great service to designers, planning engineers, consultants, contractors, power station engineers, etc, and may be recommended for reference." *E. B.*

Lambe, Cyril Gerard, & **Tranter,** C. J.
Differential equations for engineers and scientists. 1961. English Universities Press, London, 30s.

Engineer, Oct. 20, 1961, p.647. 1 col.

"Particularly suitable for the engineer, for the authors . . . never lose sight of the physical applications, and an outstanding feature is the large number of worked examples and exercises . . . Material . . . is presented clearly and concisely . . . Reference is made to the use of digital computers, but a surprising omission . . . is any reference to the analogue computer, for this type of computer is used extensively nowadays to study the behaviour of physical systems by simulating and solving the differential equations representing these systems . . . The omission referred to does not detract from the true value of the book. The authors have shown a real appreciation of the needs of engineering and science students."

Landau, L. D., & **Lifshitz,** E. M.
Electrodynamics of continuous media; translated from the Russian by J. B. Sykes and J. S. Bell. 417p. 1960. Addison-Wesley, Reading, Mass., $12.50 (Course of theoretical physics, v.8.)

Physics today, Oct. 1961, p.48, 50. ⅔ col.

"Deals with the macroscopic electric and magnetic fields in matter and with the macroscopic electric and magnetic properties of matter . . . As in the other volumes, it is assumed that the reader is mature. A knowledge of vectors and cartesian tensors is assumed as well as familiarity with the earlier volumes of this series . . . The present volume is neither an axiomatic presentation nor are the explanations based directly upon experimental evidence. A median is achieved; the authors give the physical basis for each phenomenon together with a complete mathematical formulation." *E. H. Dill.*

Lansberg, Martin Philip.
Primer of space medicine; translated by M. E. Hollander. 165p. 1960. Van Nostrand, Princeton, N. J., $3 unbound.

Spaceflight, Nov. 1961, p.218. 1 col.

"Although much scholarship has gone into this neatly produced little book, it suffers from two major defects which are singularly unfortunate in a textbook entitled as a 'primer'. These defects are firstly, unreadability and secondly . . . an excess of speculative digression . . . A difficult book to read, even for those who already have some grounding in aviation physiology. The presentation of material is often inconcise and rambling . . . Possibly the text has suffered in translation but the style of writing, embodying a curious alternation between turgidity and raciness, is frequently excruciating . . . It is with hesitation and sadness that one feels compelled to say that a book by so eminent an author in his field cannot be recommended for the purpose for which it was presumably written . . . A revealing monograph but it is not a primer." *J. G. Guignard.*

Lewis, Bernard, & von Elbe, G.

Combustion, flames and explosions of gases. Ed.2. 731p. 1961. Academic Press, New York, $22.

Chemical age, Oct. 14, 1961, p.595. ⅜ col.

"The authors are now clearly most interested in flames and the most substantial revisions follow on the new treatment of combustion wave propagation. The revision of the first part . . . is much less satisfactory. There are very few references to the many recent papers that report experimental results that are far more reliable than those available 10 years ago . . . Although some specialists will feel that the treatment of their hobbies is inadequate, all will recognize this volume as a further great service to chemistry rendered by the authors."

Lewis, J. B. G.

Non-convertible coatings. 6 pts. pt.1. 326p. 1961. Chapman & H., London, 30s.

Journal of the Society of Dyers and Colourists, Sept. 1961, p.443. 1½ col.

"Deals lucidly not only with such matters as the theoretical aspects of the nitration of cellulose, the mechanism of plasticisation, and the mechanism of polymerisation . . . but also provides a large number of detailed formulations for finishes of various kinds. It is obvious that the ten authors and the collator are practical technologists and chemists who know their subjects intimately and at first hand; as a consequence, very few factual errors were detected. This is not to say that the book is perfect. It is not; it suffers . . . chiefly from the fact that it is the work of a number of authors, leading to a certain unevenness of treatment." *J. Creasy.*

Lord, E.

Manual of cotton spinning. v.2. pt.1: Characteristics of raw cotton. 333p. 1961. Butterworth & Co., London, 45s.

Journal of the Textile Institute, Sept. 1961, p.P530. 1 p.

"No one with any claims to responsible action in the field of yarn production and control should be without . . . [this book]. Mr. Lord, with a life-time of experience behind him at the Shirley Institute, has written a fascinating volume which is immensely readable and interspersed with obviously wise and personal views where facts and theory fail us. The treatment is especially valuable to the student — who should never accept without questioning — and it is very clear that many aspects of the various testing methods used to-day require still further development . . . A careful student will glean much from Mr. Lord's comments and be able to judge where progress is most needed." *E. R. Goshawk.*

Lytel, Allan.

Fundamentals of UHF. 153p. 1961. John F. Rider, New York, $3.90 unbound.

Electronic technician, Oct. 1961, p.77. ¼ col.

"Deals primarily with the fundamental theoretical principles and components used in that section of the radio spectrum called UHF . . . which extends from 300 to 3000 mc. Chapters cover basics of wave propagation, transmission lines, resonant circuits, oscillators, transmitters, amplifiers and receivers, antennas and microwave component functions . . . Illustrated with charts, photos and diagrams . . . Can be recommended to the student as well as the working technician engaged in operating, installing, or maintaining UHF transmitting and receiving equipment."

Malisius, R.

Schumpfungen, Spannungen und Risse beim Schweissen. Ed.2, revised. 130p. 1960. Deutscher Verlag für Schweisstechnik, Düsseldorf, Germany, DM 14.80.

Welding journal, Oct. 1961, p.1096. ¼ col.

"[Summarizes] results obtained from the literature and by the author, who has been active in the field of distortion and shrinkage stresses for many years. After an introductory chapter on properties of materials, the author summarizes what is known about longitudinal, transverse and angular distortion by tacking, sequence and wedges. Numerical aids are given for flame straightening. Shrinkage stresses are also discussed from the standpoint of experimental results. Cracking is discussed in 15 pages, including methods of detection." *G. E. Claussen.*

Markey, W., & Hovorka, J.

Mechanics of inertial position and heading indication. 94p. 1961. Methuen, London, 21s.

Instrument practice, Oct. 1961, p.1265. ½ col.

"An excellent introduction to the mathematics of inertial navigation systems, primarily as applied to aircraft and marine vehicles. The difficulty of deciding what to leave out in a book of this size has lead to some irregularity in the quality of the descriptive part of the text, but the mathematical part is good enough in itself to justify the publication . . . Recommended to anyone who has a general knowledge of inertial navigation and wishes to investigate the mathematical aspects." *J. A. Lee.*

Mattock, G.

pH measurement and titration. 406p. 1961. Heywood & Co., London, 63s.

Industrial chemist, Oct. 1961, p.512. ⅝ col.

"Primarily addressed towards the practical problems of pH measurement in all its modes though principally it is concerned with methods based on the measurement of potential difference . . . Reads well in most sections and presents a clear and well-illustrated account of its subject matter . . . Its subject matter is up-to-date and apart from its final chapter is likely to stay so for many years. It is the reviewer's opinion that this book is quite unique and is an outstanding contribution to the literature. For the technologists concerned with such matters in industry this book must be absolutely indispensable and for the student and young research worker facing up to the problems involved it is a deep mine of information which should frequently be consulted." *T. S. West.*

Middlehurst, B. M. See **Kuiper, Gerard P., & Middlehurst, B. M., ed.**

Miles, F. D.

Nitric acid; manufacture and uses. 75p. 1961. Oxford Univ. Press, London, 9s. 6d.

Journal of the Royal Institute of Chemistry, Oct. 1961, p.372. ½ col.

"Well written and up to date. After outlining the historical development of the manufacture of nitric acid, the author describes the properties of nitric acid and of the oxides of nitrogen at some length. The physical chemistry of the various reactions used in the production of nitric acid from ammonia is discussed, and some indication is given of the specialized engineering required in the construction of a plant for this process . . . Contains much information which is not found even in some of the recently published textbooks for schools and colleges . . . Well illustrated, and . . . presented in such a manner as to appeal to many concerned with introductory courses on industrial chemistry." *B. E. Dawson.*

Miles, Lawrence D.

Techniques of value analysis and engineering. 267p. 1961. McGraw, New York, $8.50.

American machinist/metalworking manufacturing, Oct. 30, 1961, p.176, 178. 1 col.

"A wealth of material is in this book. The author carefully describes all the techniques that go into Value Analysis, how a company can use these techniques, and how to set up a working program. Scores of examples, with illustrations, show 'before' and 'after' products that have been analyzed for value . . . With this book, a company can get just about all the information it needs to set up a Value Analysis program of its own. It is a tribute to the author that he has been able to put, into a limited space, so much detailed information on so broad a subject." *T. J.*

Machine design, Nov. 9, 1961, p.301. ¼ col.

"The specific techniques of value analysis are presented to identify unnecessary costs in all stages of the product cycle — design, during design, during manufacturing, etc. All phases of product design, engineering, manufacturing, and quality control are discussed. Also covered are the procedures to be followed in establishing a value-analysis department in any industry. Other chapters discuss the actual work content which must be accomplished for effective value-engineering and measurements and tests which establish the degree of value practices and value work. Numerous problems and case histories are included."

Mosteller, Frederick, and others.

Probability with statistical applications. 478p. 1961. Addison-Wesley, Reading, Mass., $6.50.

Product engineering, Oct. 30, 1961, p.109. ⅛ col.

"An eminently readable text on a subject of increasing importance to engineers. Though essentially intended for classroom use . . . this book can form the basis of a home study course for those engineers who need to catch up on the world of statistics. The first four chapters give a brief course in the theory of probability. Following chapters discuss statistical applications, theory of sampling, least squares, curve fitting and sets. The authors include numerous examples to illustrate the methods and at the end of each section . . . are a number of problems for the student to work out."

Nagel, A.

Herstellung von Temperguss. 124p. 1961. Schiele, Berlin, DM 9.50 unbound.

Journal of the Iron and Steel Institute, Oct. 1961, p.226. ⅛ col.

"Intended for the practising foundryman and foundry metallurgist and will serve also as a good account of modern practice for the student. Tables of compositions, properties, etc., make the book easy to comprehend even to one relatively unfamiliar with the German language . . . Foundry practice is dealt with in the clear and concise manner adopted in this book: in few words but with the accent on facts and figures . . . A thoroughly good book and is highly recommended." *R. V. Riley.*

Nierenberg, W. A. See **Ridenour, Louis Nicot, & Nierenberg, W. A., ed.**

Norman, W. S.

Absorption, distillation and cooling towers. 477p. 1961. Longmans, New York, 70s.

Chemical age, Oct. 28, 1961, p.694. ½ col.

"Covers the whole range of gas-liquid transfer operations. The treatment is exhaustive and fundamental. Undergraduates will probably find the whole book rather overwhelming and best studied piecemeal. The author is clearly aware that his subject is complex and makes every effort to help the reader. There are many good diagrams and worked examples. Five pages of problems are given in an appendix. Full references enable the reader to follow up any chosen topic."

Gas journal, Oct. 18, 1961, p.82. ½ col.

"Object of the present volume is to review the theory of gas-liquid operations and the practical information available on the design and operation of industrial equipment . . . Although . . . primarily intended for practicing chemical engineers and advanced students, the undergraduate should find much that will be of use to him in his studies. In the early part of the book theory is represented in greater detail than is customary in general textbooks of chemical engineering, and particular emphasis has been given to the correct use of equations, symbols and units. With this in mind, 32 worked examples have been included to illustrate their application to practical problems."

Ochse, J. J., and others.

Tropical and subtropical agriculture. 2v. 1446p. 1961. Macmillan, New York, $35.

Tropical agriculture, Oct. 1961, p.349. 2½ p.

"Of the 950 pages devoted to crops, citrus occupies 122 pages, other fruit crops 237 pages . . . coffee, cocoa and tea 143 pages, rubber 82 pages, sugar-cane 57 pages, and bananas 28 pages. No other crop exceeds 20 pages of text . . . while crops such as coconuts, oil palm, cotton and tobacco are given less space. A great many tropical and subtropical crops are left out completely, some of which are of very considerable importance . . . Lack of care in the preparation of the book is evidenced in the historical remarks that are made about

various crops . . . While the work contains much useful information, it can be seen . . . that it cannot be recommended as . . . comprehensive and up-to-date . . . There are too many gaps. The very high price can hardly be justified." *G. B. M., J. W. P., & H. V.*

Pao, Richard H. F.
Fluid mechanics. 502p. 1961. Wiley, New York, $7.50.

Wastes engineering, Oct. 1961, p.595. ¼ col.

"This text, written as an introductory course in fluid mechanics, is suited for use by undergraduate students in engineering colleges. Fundamental equations of fluid motion are derived in the book by means of Newton's Law of Motion and by using the concept of conservation of energies of flow. In order to demonstrate the physical significance and the underlying principles of the fundamental equations, many illustrative examples are included. They are designed to supplement the material in the text."

Parkinson, Albert Charles.
Engineering workshop drawing. Ed.5. 172p. 1961. Pitman, London, 10s. 6d.

Mechanical world, Oct. 1961, p.356. ¼ col.

"[Additions and alterations] include the extension of Part I to cover in particular the projection of inclined discs and auxiliary views in first- and third-angle projection and a new section on welding and welding symbols in Part II. The notes on threads have been recast and there are additional descriptive notes and many new illustrations. Otherwise the book follows the original plan which has found favour with several generations of teachers and students."

Pearson, F. J., & **Osborne,** R. R.
Practical nucleonics. 208p. 1960. Spon, London, 37s. 6d.

Engineering, Oct. 27, 1961, p.555. 2⅓ col. including other reviews.

"Gives a sound course for physicists and for engineers. Besides the determination of a number of physical constants the 49 experiments detailed cover the operation of certain valve and transistor circuits, the use of electroscopes; Geiger counters, scintillation counters, nuclear emulsions, neutron detectors, the study of material and induced radioactivity, and the calibration of sources."

Nuclear power, Oct. 1961, p.98. ⅝ col.

"Based on practical work associated with a reactor course at the Birmingham College of Technology, a graded series of experiments have been assembled suitable for students of mixed disciplines in science and engineering . . . There are two sections which might have been omitted: the first of these covers measurements of fundamental physical constants . . . while the second is on electronics . . . The time could probably have been better spent on other topics, such as the use of ionisation chambers and proportional counters, and a more detailed comparison of the relative merits of Geiger and scintillation counters." *H. D. Evans.*

Pepinsky, Ray, and others, ed.
Computing methods and the phase problem in X-ray crystal analysis. 326p. 1961. Pergamon, New York, $9.

Quarterly of applied mathematics, Oct. 1961, p.268. ⅓ p.

"A collection of 28 papers and ensuing discussion presented at a conference held at Glasgow in August, 1960. A similar volume under the same title was issued in 1952 by the first-named editor; the present work is, in a sense, volume II. The international group of authors of the papers include a large fraction of those active in more extensive crystallographic computations and in general attacks on the phase problem. Somewhat more than half of the book is devoted to the strategy of crystallographic calculations on a variety of computers . . . Recommended to crystallographers and to computer experts who deal with them." *G. B. Carpenter.*

Transactions of the Faraday Society, Oct. 1961, p.1846. ⅔ p.

"The programming papers follow well trodden paths and will probably interest only those who have access to the particular machines described. Of the papers on refinement techniques all are interesting, but that by R. A. Sparks is exceptionally so and should be read by all who are working in this field. Of the papers on direct analytical methods of phase determination, it is most unfortunate that that by H. Hauptman is so short . . . All crystallographers will wish to read this book." *A. D. B.*

Philippovich, A.
Chemisch-Physikalische Grundlagen der Verwendung von Erdöl und Seinen Produkten. 333p. 1960. Springer, Berlin, 126s.

Journal of the Institute of Fuel, Oct. 1961, p.175 A. 1 col.

"The book under review is certainly not a text-book and not a guide for the beginner, but it contains so many data that it should present a useful reference book for the initiated. The expert will not be too much disturbed by the numerous misprints . . . What is more serious is the treatment of the subject matter. More space has been devoted to the description of determining the Reid vapour pressure than to the whole field of mass spectrography. The second law of thermodynamics occupies one page and five lines. Just over two pages are taken up with the Bohr model of the atom . . . With these cautions the book can be recommended for reference purposes." *R. S.*

Pirie, N. W., ed.
Biology of space travel. 120p. 1961. Institute of Biology, London, 25s.

New scientist, Oct. 5, 1961, p.52, 54. ⅝ col.

"*Biology of Space Travel* makes books on space fiction pale in the brilliant light it throws on the biological problems connected with short-, medium- and long-duration flights into inter-planetary space. The effects of weightlessness, heat and cold, the supply of food, and the disposal of biological waste materials, the effects of radiation and the impact of solitude and confinement on the astronaut, problems of astronaut selection . . . are all discussed in a manner intelligible to the educated layman despite the fact that the discussion rarely loses touch with scientific stringency . . . Should be of absorbing interest to scientists and laymen alike." *O. Lowenstein.*

Polentz, Lloyd M.

Engineering fundamentals for professional engineers' examinations. 366p. 1961. McGraw, New York, $9.50.

Machine and tool blue book, Nov. 1961, p.69. ⅛ col.

"Here is a comprehensive, authoritative review of engineering fundamentals that will help you prepare for and pass the closed-book or fundamentals section of your state licensing examination. All phases of engineering are covered in concise detail with particular attention given to the eight different fields of engineering that ordinarily appear on the exams —mathematics, mechanics, fluid mechanics, thermodynamics, mechanics of materials, electricity, electronics, chemistry, and economics and investment theory. Principles of physics, as they apply to the various subjects discussed, are interspersed throughout."

Mining engineering, Nov. 1961, p.1196. ⅛ col.

"Each principle is first explained, then applied to specific engineering problems; finally, problems from past examinations are provided for practice and review. (Answers are at the end of the book, but emphasis is on method and presentation of the solution throughout the book, rather than on the answer itself.)"

Pollack, A., & **Westhal,** P.

Metall-Reinigung und Entfettung. 216p. Eugen G. Leuze Verlag, Saulgau, Germany, DM 16.50.

Metal industry, Sept. 29, 1961, p.248. ⅛ col.

"An interesting introduction to the chemistry and practical applications of metal cleaning and degreasing. The writers deal with the physical-chemistry of degreasing and cleaning in very concise terminology. Various types of plant are discussed both for static and continuous operations. Numerous chemicals and formulae are given for cleaning and degreasing together with their concentrations and working temperatures for highest efficiencies . . . Written for operators and specialists alike." *I. W.*

Porter, G. See **Progress** in reaction kinetics.

Progress in reaction kinetics. v.1; edited by G. Porter and B. Stevens. 276p. 1961. Pergamon, New York, 70s.

Chemical age, Oct. 28, 1961, p.694. ⅛ col.

"First of a new series which Pergamon Press hope to publish annually . . . Contains nine reviews on aspects of reaction kinetics which are of contemporary interest. Four of the articles relate to gas kinetics . . . and five to liquid phase kinetics . . . Articles are written by leading authorities in their fields and provide quantitative data along with a critical assessment of their reliability on a wide variety of reaction rates . . . In future volumes it is proposed to publish cumulative indices of all reactions detailed in earlier volumes . . . Should prove to be most useful to research workers in kinetics."

Puchstein, Albert Frederick.

Design of small direct-current motors. 407p. 1961. Wiley, New York, $12.

Consulting engineer, Nov. 1961, p.206. ⅛ col.

"Essentially a collection of methods for designing small direct current electrical motors, this volume covers design conditions where stock parts are available for motors and where motors must be designed on a 'custom' basis. The author is thorough and orderly in his presentation, and the emphasis is placed on electromagnetic aspects of design, both theoretical and practical."

Control engineering, Nov. 1961, p.185. ⅛ col.

"This comprehensive treatment of a special but important aspect of electrical machine design will be welcomed by educators as well as practicing engineers. It should, moreover, serve as a fine companion to C. G. Veinott's *Theory and Design of Small Induction Motors* . . . The author develops his subject by discussing both planned and existing motor designs. This is done through illustrative examples that consider conventional procedures and special methods used by designers. Since the book is primarily directed toward those interested in small motor design, it assumes familiarity with their principles and characteristics . . . A refreshing departure from many highly theoretical, generalized texts about energy converters that have appeared in recent years." *Charles S. Siskind.*

Pyeatt, A. D.

Technical illustration. 128p. Higgins Co., Inc., 271 Ninth St., Brooklyn, $5 unbound.

Design news, Oct. 27, 1961, p.85. ⅛ col.

"Intended primarily for technical illustration departments, this . . . book is also a good reference for designers interested in techniques for sketching and rendering. Perspective is used in most of the material. Understandably, inking takes up a good portion of the book but some of the hints on using instruments with ink should be of value to designers."

Reza, Fazollah M.

Introduction to information theory. 496p. 1961. McGraw, New York, $13.50.

Electrical journal, Sept. 29, 1961, p.783. ⅜ col.

"Purpose . . . is . . . to present elements of modern probability theory, of information theory and of coding theory . . . Covers essential aspects of existing literature up to the time of publication and many topics appear for the first time in book form. Though theoretical in nature, physical motivation is emphasised by the text and some of the abstract techniques of probability theory are explained."

Ridenour, Louis Nicot, & **Nierenberg,** W. A., ed.

Modern physics for the engineer. Second series. 383p. 1961. McGraw, New York, $9.50.

Journal of the Institution of Electrical Engineers, Oct. 1961, p.625. ⅜ col.

"In spite of its title, this is not a textbook . . . Consists of a series of lectures by some 16 physicists, organized by the University of California Extension Division. The topics are intensely interesting. One learns about all kinds of things, from anti-particles to the

sources of cosmic radio disturbance . . . May be recommended to all who want a vivid picture of modern physics at work, at a technical level well above popular scientific journalism, and not all easy reading . . . Does not aim to provide a systematic exposition, but it is very stimulating and deals with matters of high interest." *A. Tustin.*

Nuclear instruments & methods, July 1961, p.367. ⅝ col.

"The first series covered by the . . . title appeared in 1954 . . . Represents an effort to abridge the gap between 'pure' scientists and engineers, a gap becoming smaller and smaller as physical sciences develop. On one side this is clearly observed by the scientist in the physical laboratory who has to work with more and more advanced equipment and on the other side by the modern engineer who is faced with the problem of quickly trying to understand the consequences and possible applications of an increasing number of new physical discoveries. In many cases the time elapsed between a fundamental discovery in physics and a selling product may be surprisingly short and it is therefore of increasing importance to present the achievements of modern physics for the engineer. The new volume constitutes a very ambitious and successful attempt in this respect." *Kai Siegbahn.*

Riegels, Friedrich Wilhelm.

Aerofoil sections; translated from the German by D. G. Randall. 281p. 1961. Butterworth & Co., London, 200s.

Engineer, Oct. 20, 1961, p.648. 1 col.

"The theory presented will perhaps be of some interest, but only to the few specialists intimately concerned. Most British aerodynamicists will be well content to rely on the various publications already available in this country, and will turn to this new volume mainly for the tabulated data and graphs which occupy over half the book. This is not intended to be derogatory but there would appear to be too little that is new and too little that is not already available in other forms."

Rose, David J., & **Clark,** M., jr.

Plasmas and controlled fusion. 493p. 1961. Wiley, New York, $10.75.

Electronic industries, Oct. 1961, p.76. ⅛ col.

"A graduate-level textbook on the principles underlying plasma physics and controlled fusion. The authors are M.I.T. professors experienced in teaching, research, and engineering applications of plasma physics. The first twelve chapters cover plasma physics, hydromagnetics, and elementary gaseous electronics in association with transport and electromagnetic theories. The last four chapters dwell more specifically upon the controlled fusion problem, including experimental and theoretical approaches, and methods of eventual energy recovery."

St. Pierre, George R., ed.

Physical chemistry of process metallurgy. pt.2. 727p. 1961. Interscience Publishers, New York, $25. (Metallurgical Society conference series, v.8.)

Journal of metals, Oct. 1961, p.705. ⅞ col.

"Completes the publication of the papers presented at the AIME Symposium on the Physical Chemistry of Process Metallurgy held at Pittsburgh in 1959 . . . Many papers in this book . . . would be better published in the usual technical and scientific journals. However, there is still much to be recommended. For example, the largest section, which is devoted to industrial applications, will be found stimulating by both the research and industrial metallurgist . . . While this collection of papers must be available to the process metallurgist, it is felt that its correct place is the library and not the personal book-shelf." *Geoffrey R. Belton.*

Savet, Paul H., ed.

Gyroscopes; theory and design. 410p. 1961. McGraw, New York, $12.75.

Design news, Nov. 10, 1961, p.118. ⅝ col.

"Basically an introductory and reference text in gyro art . . . Specifically deals with high-precision gyro instruments. The first three chapters provide an introduction to the mechanics of a spinning wheel. This is followed by a chapter on restraints, which is the basis of any system consideration in which a gyro element is integrated into an instrumentation system. Chapters on stable vertical and meridian-seeking systems follow. Two chapters deal with inertial guidance fundamentals and the last four chapters are related to the physical gyro component, its design, performance, mechanical and electrical properties and evaluation . . . An extensive bibliography and problems are presented at the end of each chapter."

Machine design, Oct. 12, 1961, p.305. ⅓ col.

"Deals with design practices for quality gyros of high performance and operational reliability. Applications presented include gyro compasses, stable verticals and recent developments in inertial guidance. Topics covered include: Fundamentals of vector and transformation calculus; fundamental mechanical analysis of a theoretical ideal gyro; stable gyroverticals; inertial guidance fundamentals as applied to both short-duration ballistic vehicles and long-duration cruise ships; design and analysis; electrical characteristics of gyros; and test procedures for all types of gyros. 'Schuler tuning' and its relation to the earth's curvature are also discussed in detail."

Schilling, Walter.

Transduktortechnik. 267p. 1960. Oldenbourg, Munich, Germany, DM 40.

Control engineering, Nov. 1961, p.187. ¼ col.

"[The author] talks about transductors in lieu of magnetic amplifiers. The most useful magnetic amplifier text in English today is W. A. Geyger's *Magnetic-Amplifier Circuits* . . . Compared with Geyger's book, Schilling offers a more fundamental text . . . An excellent introduction to magnetic amplifiers for engineers and college students. If translated, it would probably fill the need for a new text on the subject." *Werner G. Holzbock.*

Schure, Alexander, ed.

Filters and attenuators. 87p. 1961. John F. Rider, New York, $2.25 unbound.

Electronic technician, Oct. 1961, p.76. ¼ col.

"A one-volume collection of theoretical and practical filter-facts, covering power supplies,

audio, video and r-f types, was not easy to come by previously. Wide circulation of this book should eventually reduce the number of letters technical editors receive from readers asking for diagrams and component specifications on LC/RC graded filters, cancellation filters, tone compensation, rumble and scratch filters, constant-k and m-derived networks, notch filters and others. Attenuator and equalizer networks are also thoroughly explored. Charts, schematics and drawings are satisfactory."

Schwabe, K.

Elektrometrische pH-Messungen unter extremen Bedingungen. 95p. 1960. Verlag Chemie, Weinheim, Germany, DM 12.50.

Journal of the Royal Institute of Chemistry, Oct. 1961, p.365. 1⅓ col. including another review.

"The . . . monograph . . . was engendered by the growing technical necessity and importance of pH measurements in the region below 0 and above 13 and also at elevated temperatures and in diverse media. An attempt is made to survey this field and to make a critical assessment of the accuracy of measurement and of the physical meaning and significance of the measurements . . . Should be welcomed by all who have to do with the technology or physical chemistry of hydrogen ion concentration under extreme conditions." *E. Bishop.*

Sell, George, ed.

Quality assessment of petroleum products. 123p. Institute of Petroleum, London, 15s.

Petroleum, Oct. 1961, p.397. ½ col.

"Intended to supplement the annually issued volumes of test methods of the Institute of Petroleum and of the ASTM by giving further information of the background and significance of the tests and some guidance on their use in assessing the quality and performance characteristics of the products. The sections included are: crude oil, petroleum gases, petroleum solvents, motor gasoline, aviation fuels, diesel fuels, burning oil, fuel oils, lubricants, wax and petroleum and bitumen."

Shewmon, Paul G., & Zackay, V. F., ed.

Response of metals to high velocity deformation. 491p. 1961. Interscience Publishers, New York, $18.

Journal of metals, Oct. 1961, p.705, 716. 1⅘ col.

"Provides an excellent starting basis for the beginner in this rapidly expanding field . . . The technical material is somewhat disconnected so that the beginner would perhaps prefer a more orderly treatment. Unfortunately, none is available. In general, the subject matter . . . brings out clearly the divergence of opinion which exists among the several investigators on many matters relating to high velocity deformation. The numerous discussions which have been included emphasize well this aspect of our present state of knowledge."

Product engineering, Oct. 2, 1961, p.102. ¼ col.

"The use of high strain rates to deform metals and to change their properties has concentrated on solving practical problems. This book, a summary of an AIME Conference, tries to pin down the various factors which influence the mechanism of metal deformation at high velocities . . . Divided into two parts: deformation at high velocities on mechanical testing machines; effect of shock waves on metals from explosives and other methods. One important contribution of the book is its standardization of symbols and terminology used in the text . . . A thorough discussion of fundamentals but has little information directly usable in the design of parts."

Shigley, Joseph Edward.

Theory of machines. 2pts. 1256p. 1961. McGraw, New York, $19.

Control engineering, Oct. 1961, p.181. ⅓ col.

"This is actually two books in one. Part I, Kinematic Analysis of Motions, deals with the geometry of motions without reference to the forces that cause them. After describing the necessary fundamentals, the author considers real motion-producing situations, including all types of gears, linkages, cams, and analog computing mechanisms. Part II, Dynamic Analysis of Machines, examines the motions of various machine parts acted on by forces . . . Each chapter is followed by a set of illustrative problems, and the answers are included . . . Exceptionally well written and . . . suited for use as a reference or a text for teaching or self study." *Mitchell Salanas.*

Journal of the Franklin Institute, Oct. 1961, p.329. ⅘ col.

"Comparable works have seldom satisfied, at the same time, the rigorous standards of the theoretician and the demands of the practicing engineer, for techniques applicable to a great variety of technical problems. Professor Shigley has succeeded in presenting the analytical foundations of machine design in a manner simple enough to be of value to the student, yet so comprehensive and general that it may serve as a reference to the design engineer." *Klaus Cappel.*

Spotts, Merhyle Franklin.

Design of machine elements. Ed.3. 583p. 1961. Prentice-Hall, Englewood Cliffs, N. J., $13.35.

Design news, Oct. 13, 1961, p.113. ¼ col.

"The up-dating of this third edition, combined with the enlarging and changes of the second edition, combine to provide simplification and streamlining of well-established analytical techniques used in the design of machine elements. Chapters one and two are titled 'Fundamental Principles' and 'Working Stresses'. Chapters three through twelve cover machine elements by type. The last two chapters cover 'Dimensioning and Details' and 'Engineering Materials.' Although intended as a college text, this book should be a valuable, up-to-date reference source for mechanical design work."

Machine design, Oct. 12, 1961, p.302. ¼ col.

"Offers analytical techniques used for the design of various machine elements and includes material selection, heat treatment, strength, fatigue resistance, lubrication, wear, and tolerances. Each chapter has extensive bibliographical material along with numerous worked-out examples . . . First covers theories of mechanics and strength of materials proceeding on to stress concentration and repeated load-

ing. Also included are detailed discussions on basic machine members such as shafts, springs, screws, bearings, gears, cams, and press fits."

Stevens, B. See **Progress** in reaction kinetics.

Stickler, William C.
General organic chemistry. 630p. 1960. Longmans, New York, $7.

Journal of chemical education, Oct. 1961, p.534. 1 col.

"Planned for use in a full year course for premedical and other preprofessional students, and for chemistry majors; but, its organization is such that it also lends itself to adaptation for use in the concentrated one semester course . . . This carefully prepared up-to-date exposition of the principles of organic chemistry, written in a clear, definite, and interesting style should fill the needs of many college teachers for a satisfactory text for a one year undergraduate course in organic chemistry." *Nan V. Thornton.*

Stokes, Bryan J.
Organic chemistry. 488p. 1961. E. Arnold, London, 20s.

Journal of the Royal Institute of Chemistry, Oct. 1961, p.371. ⅘ col.

"As well as providing a background for university work, it sets out to indicate the scope and significance of organic chemistry today to those who will not study the subject further. There are sections on important industrial groups of organic chemicals, such as drugs, dyestuffs and plastics, that relate the subject to everyday life . . . Well produced, readable and up to date . . . Deserves serious consideration by teachers of chemistry about to replace outworn or outdated sixth-form organic textbooks." *R. M. Haines.*

Suslov, S. P.
Physical geography of Asiatic Russia; translated from the Russian by N. D. Gershevsky. 594p. 1961. Freeman, San Francisco, $15.

Discovery, Oct. 1961, p.460. ⅗ col.

"An English translation of Prof. Suslov's excellent work on the physical geography of the U.S.S.R. beyond the Urals, one of the 'classics' of Russian geography. Each of the 15 regions into which the author divides Siberia, the Far East and Central Asia is seen as possessing a basic unity of all its physical characteristics — geology, geomorphology, hydrography, climate, soil, vegetation and fauna. Not only are all these features described, but also the relationships and inter-actions between them are shown. In areas where they are of particular importance, special physical phenomena such as permafrost and seismology are considered at length. Suslov was very much alive to the close links between physical and economic geography, and his book demonstrates this awareness." *R. A. French.*

Nature, Oct. 21, 1961, p.200. 2 col.

"Suffers from many original and translation defects. First and foremost the book purports to be the *Physical Geography of Asiatic Russia* but this title does not accurately describe the contents. Physical geography must clearly include geomorphology and structural geology. In these fields the book is very weak . . . The translation has not been properly revised, and the number of glaring mistranslations or mistakes in the original text is large . . . The general impression is that this book was rapidly thrown together by a person or persons more interested in bio-geography than in geology and that the geological-morphological part of it is very poor and contains many original and translation errors." *S. I. Tomkieff.*

New scientist, Oct. 19, 1961, p.195. ½ col.

"There is an acute shortage of up-to-date books in English on the geography of the USSR, and this volume is therefore most welcome. The only comparable work is L. S. Berg's *Natural Regions of the USSR* (1937) . . . Suslov's work follows Berg in directing attention to the total natural landscape formed by interaction of all physical forces. The treatment is on the familiar basis of physiographic regions, but information on areas little known to Western readers is most interestingly presented . . . In general, a very readable, beautifully produced book, highly recommended to anyone interested in Asiatic Russia." *E. T. Stringer.*

Tanford, Charles.
Physical chemistry of macromolecules. 710p. 1961. Wiley, New York, $18.

Canadian chemical processing, Oct. 1961, p.108. ½ col.

"Treats the major areas of physical chemistry: molecular structure with emphasis on X-ray diffraction; molecular statistics; thermodynamics; light scattering; transport processes and viscosity; electrostatics; and equilibria and kinetics of reactions. A summary of the fundamental theory is included in each of the areas presented, and it is then shown how the theory may be modified or extended in order to become applicable to molecules of very high molecular weight. In each case, the development is sufficiently rigorous so that the reader clearly sees the assumptions which are made on the basis of which the applicability of any particular technique or theoretical equation to specific problems may be judged."

Titkov, N. I., and others.
Electrochemical induration of weak rocks; translated from the Russian. 52p. 1961. Consultants Bureau, New York, $12.50 unbound.

Bulletin of the Institution of Mining and Metallurgy, Sept. 1961, p.ix. 1 col.

"Deals with experimental investigations of electroosmosis and associated phenomena, which resulted in the development of electrochemical techniques for hardening the walls of boreholes . . . This report claims successful experiments with electrical methods in a series of shallow trial holes in clay, shale and weak sandstone . . . Promising as the work described is, it is clear that more extensive and full-scale trials would be required to establish the techniques as *operationally* feasible." *B. G. Fish.*

Tooley, F. V., ed.
Handbook of glass manufacture. v.2. 282p. 1960. Ogden Pub. Co., New York, $10.

Glass technology, Oct. 1961, p.212. ⅗ col.

"There is no doubt that this combination of authors have dealt efficiently with their individual subjects and it can be no criticism of the excellence of Volume 2 if those subjects of most common interest in glass manufacture have already received attention in Volume 1 . . . Volume 2 authors have, in many cases, to present rather specialized subjects, such as chemical analysis, structure, statistics, as well as more practical and descriptive ones such as the manufacturing processes for flat glass and the electrical melting of glass . . . We should welcome this attempt to weld science and technology with confidence that there will be very many to whom it will prove helpful in a most practical way." *R. F. R. Sykes.*

Urquhart, Duncan Hector.
Cocoa. Ed.2. 293p. 1961. Longmans, New York, 40s.

Tropical agriculture, Oct. 1961, p.353. ⅜ p.

"The first edition . . . was well received by planters, agricultural officers and research workers alike, since it met a long felt need for an authoritative, modern textbook . . . Much of the text has been re-written and new chapters added in the second edition, the purpose of which, the preface states, 'is to review recent progress and bring the work up to date' . . . Could undoubtedly have been made more up-to-date had the author invited statements from the main research stations on the position of their researches . . . As excellently illustrated as the first, [and] can be warmly recommended to all whose interests lie in cocoa production." *F. W. C.*

Ushik, G. W.
Festigkeit und Plastizität der Metalle bei tiefen Temperaturen; translated from the Russian. 180p. 1961. VEB Deutscher Verlag für Grundstoffindustrie, Leipzig, DM 16.50.

Acier stahl steel, Sept. 1961, p.404. ⅛ col.

"The strength and plasticity of metals at low temperatures are closely bound up with the problem of brittle fracture. On the basis of a very large number of tests that he has personally conducted, the author studies and explains the low-temperature transformations of metals, which, together with well-defined stress concentrations, bring about brittle fracture. A great deal of research work relating to the problem of brittle fracture has been undertaken by investigators in every country over the past few years. In an appendix the book gives a very comprehensive list of references to publications by American, Russian, German and British authors on the subject."

Wainwright, Lewis Frederick.
Aircraft electrical practice. 320p. 1961. Transatlantic, Hollywood - by - the - Sea, Fla., $11.25.

Aircraft engineering, Oct. 1961, p.305. ⅝ col.

"[The author's] treatment of the several branches of the subject is succinct and clear. He expends no time in conjecture or in any attempt to give the student food for thought by presuming to foretell the future . . . An essentially practical work which describes the increasing activities of the aircraft electrical engineer with lucid comprehension. Whether the book is dealing with the special requirement of aircraft electrical equipment, the design problems to which they give rise, or is explaining the operation of the carbon-pile voltage regulator, its descriptions are clear and concise . . . Should be read by every student of the subject." *F. B.*

Weidner, Richard T., & **Sells,** R. L.
Elementary modern physics. 573p. 1960. Allyn, Englewood Cliffs, N. J., $8.50.

School science and mathematics, Nov. 1961, p.643. ⅛ p.

"Written primarily for use in courses for engineering and science students. This course could follow the course in general physics, since the only pre-requisites assumed are elementary physics and introductory calculus . . . Treatment of the topics appears to be excellent for the purpose intended. The authors have attempted to avoid a superficial descriptive text and also avoid a strictly mathematical treatment for which most students at the sophomore and junior levels in college are not prepared . . . Excellent for use at the sophomore or junior level in college." *J. Bryce Lockwood.*

Weiner, R., & **Schiele,** C.
Schnellanalysenmethoden für galvanische Bader. 115p. 1960. Eugen G. Leuze Verlag, Saulgau, Germany.

Plating, Oct. 1961, p.1078. 1⅛ col.

"While the book is worth while and of good quality, it fails to live up to its title. The time required for the different determinations is not given, and there are almost no comparisons of the relative speed of the various methods. The more complex question of the speed and convenience of the different methods for running a number of identical samples simultaneously does not seem to be discussed. It appears that only single determinations are considered . . . The authors appear to have used and tested all of the methods given . . . Well organized and well indexed, and anyone accustomed to the German language would have no difficulty in locating a particular method." *George Dubpernell.*

Wilks, John.
Third law of thermodynamics. 142p. 1961. Oxford, New York, $2.40 unbound.

Journal of the Royal Institute of Chemistry, Sept. 1961, p.333. ¾ col.

"A concise and unified account of the history and the essence of the Third Law. The meaning of the different formulations is brought out clearly. It is shown which formulations are equivalent, and that the last one by Simon, which the author adopts, is far more reaching and goes beyond previous formulations. Among the wide field of applications admirably covered none is more striking than the phase separation of $^4He/^3He$ mixtures . . . An excellent book which, it is to be hoped, will be widely read by all students of physical chemistry." *O. E. Ford.*

Williams, C. A.
Aircraft instruments. 240p. 1961. Odhams, London, 35s.

Engineering, Sept. 22, 1961, p.386. 2½ col.

including other reviews.

"A handbook of mechanical and electrical general-purpose instruments used in aircraft . . . Explains, in simple terms with plenty of diagrams, the working principles of most of the instruments used in modern aircraft. Each instrument is dealt with in a self-contained section in which its operating principles, construction, calibration, testing and maintenance are described . . . All told, a tremendous amount of up to date information has been crammed into this comparatively small book, without any sign of cramping. Diagrams are clear and to the point, print is clear, and, at the price, the book is well worth buying." *D. Stinton.*

Woods, Leslie Colin.

Theory of subsonic plane flow. 594p. 1961. Cambridge, New York, $22.50.

Aircraft engineering, Oct. 1961, p.305. 1⅓ col.

"Part of this work is . . . new or very recent whilst the rest is now classical material presented in a new way. Certainly some of the work on jet flaps, perforated walls and on unsteady flow is new to me, and I find the unification of the earlier work very satisfactory . . . A book of methods rather than of detailed results, though these latter naturally find a place. Aerofoil designers and wind tunnel users are therefore unlikely to find in it results ready to be taken down from the shelf; its object is to present them with the techniques for obtaining their own detailed requirements . . . Provides a mine of information to which any worker in the subject will wish to have constant access." *L. H.*

Woolfson, M. M.

Direct methods in crystallography. 144p. 1961. Oxford Univ. Press, London, 30s.

Chemical age, Oct. 14, 1961, p.595. ⅛ col.

"Provides systematic accounts of the detailed methods for transforming X-ray crystallographic data to electron density representations of structure. The first four chapters deal with methods involved in hand calculation and the application of inequality and sign relationships. Chapters V and VI outline the current techniques based on electronic computers, while Chapter VII surveys the past, present and future of computational methods in structural analysis . . . Intended for those immediately active in this special field, and for them it should prove to be a valuable concise summary."

Wrangham, D. A.

Elements of heat flow. 486p. 1961. Chatto, London, 70s.

Engineer, Sept. 8, 1961, p.403. 1 col.

"A preliminary perusal of this book gives an immediate impression of untidiness and confusion. Unfortunately, a more careful examination only serves to confirm the first impression . . . The subject matter . . . would be appropriate to an introductory course on heat transfer at undergraduate level, but the book cannot be recommended for such a course owing to the unsatisfactory treatment of most topics. Even the chapter on units is badly written . . . An unsatisfactory book in almost all aspects . . . The best that can be said of this book is that the binding and the quality of the paper are good!"

Engineering, Oct. 27, 1961, p.554. 1 col.

"A superficial assessment of this book creates the impression that it helps to fill the gap, for the undergraduate, between the extensive volumes available to the researcher and the restricted treatment given in many books on applied thermodynamics . . . Nine of [the] chapters have bibliographies; but the total number of such references is only 32, with only four post-1950 . . . Although the author recognizes that the subject is one requiring careful definitions of terms, dimensions and units, he fails to maintain control . . . To add to the confusion, there are so many changes of symbols in some sections as to exasperate the reader . . . It is regrettable that the favourable first impression should have to be reversed by the inexcusably large number of [over 200] errors." *B. J. Jeffery.*

Wunderly, C.

Principles and applications of paper electrophoresis; translated from the German by Ralph E. Oesper. 253p. 1961. Van Nostrand, Princeton, N. J., $5 unbound.

Chemical age, Sept. 9, 1961, p.366. ⅔ col.

"A revised version of a German edition [and] presents an up-to-date review of the methods and results of paper electrophoresis. After a three-page introduction on the historical development . . . the author gives a clear and concise account of its theoretical foundations (16 pages), followed by a survey (25 pages) of methods . . . then a useful discussion on techniques (36 pages) and a survey of results (94 pages) . . . Many laboratories should find this a useful acquisition which provides a remarkably good starting point for searches of literature for a subject which is scattered in many journals."

Journal of the Royal Institute of Chemistry, Oct. 1961, p.364. 1⅓ col.

"The intention of the author was to produce an up-to-date review of methods and results, and there is no doubt that he has succeeded. With careful study, it is possible to find all the necessary details to enable paper electrophoresis to be carried out successfully, together with a discussion of the various errors and interfering factors which make the technique somewhat hazardous for the beginner . . . For those interested in the general application of paper electrophoresis or the results obtained from its application in the field of serum proteins, this book is well worth reading, although somewhat expensive." *I. Smith.*

Zackay, V. F. See **Shewmon,** Paul G., & **Zackay,** V. F., ed.

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